Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 -35 Canceled

36. (New) An in vitro method for generating a human cell culture which comprises at least 90% human melanocytes which are capable of melanin and/or L-dopa synthesis, comprising

a) culturing epidermal human cells in a serum-free, pituitary extract free and phorbol ester-free medium in the presence of antibiotics, and

b) subculturing the epidermal cells in the presence of at least 0.75 mM Ca^{2+}.

37. (New) An in vitro method according to claim 36, wherein step a) is preceded by the step of mechanically and/or enzymatically separating epidermal cells from dermal cells.

38. (New) An in vitro method according to claim 36, for use in an autologous cell implantation.

39. (New) An in vitro method according to claim 36, for generating a monoploid human cell culture.

40. (New) A method according to claim 36, wherein said human melanocyte culture is at least 90% pure, such as at least 91, 92, 93, 94, 95, 96, 97, 98, 99 or 100 % pure.

41. (New) A method according to claim 36, wherein said human melanocyte culture is at least 95 to 100% pure.

42. (New) A method according to claim 36, wherein the concentration of Ca^{2+} is at least 1 mM.

43. (New) A method according to claim 36, wherein the concentration of Ca^{2+} is at least 1 to 1.6 mM.

44. (New) A method according to claim 36, wherein the concentration of Ca^{2+} in the culture is kept at approximately 1.2 to 1.6 mM during one or more days of the cultivation period.

45. (New) A method according to claim 36, wherein said melanocytes maintain their mitotic qualifications in the culture.

46. (New) A human melanocyte culture generated by a method according to claim 36.

47. (New) One or more cell(s) from a melanocyte culture according to claim 46, which are autologous melanocyte(s).

48. (New) Two or more cells from a melanocyte culture according to claim 46, which are monoploid

49. (New) A medicament comprising one or more cell(s) from a melanocyte culture according to claim 46.

50. (New) A composition comprising one or more cell(s) from a melanocyte culture according to claim 46, for use as a medicament.

51. (New) A pharmaceutical composition for use in an autologous cell implantation comprising one or more cell(s) from a melanocyte culture according to claim 46.

52. (New) A pharmaceutical composition for the treatment of Parkinson's disease in a patient in need thereof comprising one or more cell(s) from a melanocyte culture according to claim 46.

53. (New) A method for screening for substances capable of effecting neuronal cells from a human patient suffering from Parkinson's disease, which method comprises

a) employing a more than 90% pure autologous human melanocyte culture from said patient

b) pre-plating a plate with one or more potentially effective substances,

c) plating one or more cell(s) from said melanocyte culture generated in step a) onto said plate,

d) incubating said melanocytes with said substances during a decided incubation time, and

e) analyzing the plate to identify the substances that display an effect on the plated cell(s).

54. (New) A method according to claim 53, wherein said melanocytes are at least 90% pure, such as at least 91, 92, 93, 94, 95, 96, 97, 98, 99 or 100 % pure.

55. (New) A method according to claim 53, wherein said melanocytes are at least 95 to 100% pure.

56. (New) A method according to claim 53, which is executed as a high-throughput screening.

57. (New) A method according to claim 53, wherein the plates in step e) are analysed on a reader such as a fluorescence-reader.

58. (New) A method according to claim 53, wherein the non-viable cell(s) effected by a substance from the plate in step e), are removed, and the viable cells are analysed using a cell counter or flow cytometric analysis.

59. (New) A method according to claim 53, wherein said melanocyte(s) used in said method is/are generated by a method comprising
a) culturing epidermal human cells in a serum-free, pituitary extract free and phorbol ester-free medium in the presence of antibiotics, and
b) subculturing the epidermal cells in the presence of at least 0.75 mM Ca^{2+}.

60. (New) A method according to claim 53, further comprising identifying a substance suitable in an individual medical treatment method for a human patient suffering from Parkinson's disease.

61. (New) A substance identified by a method according to claim 53 for treating Parkinson's disease in a human patient.

62. (New) A method for screening for a predisposition for Parkinson's disease in a human patient, comprising testing the sensitivity of one or more cell(s) from an autologous melanocyte culture from said patient for a substance identified by a method according to claim 53.

63. (New) A method for screening for a predisposition for Parkinson's disease in a human patient, comprising testing the sensitivity of one or more cell(s) from an autologous melanocyte culture from a patient predisponary for Parkinson's disease for a test substance, and comparing the sensitivity of said patient's one or more cell(s) from an autologous melanocyte culture, to the sensitivity of one or more cell(s) from an autologous melanocyte culture from a healthy individual.

64. (New) A method according to claim 63, wherein said melanocytes are at least 90% pure, such as at least 90, 91, 92, 93, 94, 95, 96, 97, 98, 99 or 100% pure.

65. (New) A method according to claim 63, wherein said melanocytes are at least 95 to 100% pure.

66. (New) A method according to claim 63, wherein the plates in step e) are analysed on a reader such as a fluorescence-reader.

67. (New) A method according to claim 63, wherein the non-viable cell(s) effected by a substance from the plate in step e), are removed, and the viable cells are analysed using a cell counter or flow cytometric analysis.

68. (New) A method according to claim 63, wherein said melanocyte(s) used in said method is/are generated by a method comprising
a) culturing epidermal human cells in a serum-free, pituitary extract free and phorbol ester-free medium in the presence of antibiotics, and
b) subculturing the epidermal cells in the presence of at least 0.75 mM Ca^{2+}.

69. (New) A method for screening for substances capable of effecting neuronal cells from a human patient suffering from Parkinson's disease, which method comprises:

f) employing a more than 90% pure autologous human melanocyte culture from each patient,
g) pre-plating a double set of plates with identical one or more potentially neurotoxic substance(s),
h) plating one or more cell(s) from one of said melanocyte cultures generated in step a) onto each set of plates,
i) incubating said melanocytes with said substances during a decided incubation time, and
j) analysing the plates to identify the effect that the substances have on the plated cell(s), and
k) comparing the sensitivity of the melanocyte cultures from each patient to the substances.

70. (New) A method according to claim 69, wherein said melanocytes are at least 90% pure, such as at least 90, 91, 92, 93, 94, 95, 96, 97, 98, 99 or 100% pure.

71. (New) A method according to claim 69, wherein said melanocytes are at least 95 to 100% pure.

72. (New) A method according to claim 69, wherein the plates in step e) are analysed on a reader such as a fluorescence-reader.

73. (New) A method according to claim 69, wherein the non-viable cell(s) effected by a substance from the plate in step e), are removed, and the viable cells are analysed using a cell counter or flow cytometric analysis.

74. (New) A method according to claim 69, wherein said melanocyte(s) used in said method is/are generated by a method comprising
a) culturing epidermal human cells in a serum-free, pituitary extract free and phorbol ester-free medium in the presence of antibiotics, and
b) subculturing the epidermal cells in the presence of at least 0.75 mM Ca^{2+}.